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VOL. XIX **Air Corps News Letter** NO. 21

Information Division, Air Corps — November 1, 1936 — Munitions Building, Washington, D.C.

The chief purpose of this publication is to distribute information on aeronautics to the flying personnel in the Regular Army, Reserve Corps, National Guard, and others connected with aviation.

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TACTICAL EMPLOYMENT OF AERIAL PHOTOGRAPHY

By Captain Roland Birnn, Air Corps

THE degree to which aerial photography may be employed in the ground or air forces is dependent upon the production capacity of the photographic agencies with the forces in question. These photographic agencies fall under the heading of that often mentioned phrase - "means available" - and include all units which are necessary in the taking of the aerial photograph, its conversion into a print or series of prints, and even the conversion of a number of prints (mosaic) into a map. They are:

With Air Corps

Observation Group	1 Photo Section 1 Off. 50 E.M.
Observation Squadron (Separate)	1 Photo Section 1 Off. 20 E.M.
Bombardment Group	1 Photo Section 1 Off. 10 E.M.

Reconnaissance Squadron (Air Force) - a tentative organization but if adopted will probably be equipped for photography. If made an organic part of each Bombardment Squadron it may result in increase in size of Bombardment Group Photo Section.

With Ground Forces

Infantry or Cavalry (Brigades or Divisions) Reinforced, when on independent missions:- Photo Section of Observation Squadron (Separate) which would be normally attached.

Corps - Photo Section of Organic Observation Group.

Field Army (Photo Section of Organic Observation Group. Photo Company of Army Signal Unit. Engineer Topographic Battalion. Plus Photo Section with the Several Corps' Obs. Groups).

The Topographic Battalion with the Field Army would probably be equipped with an aero-cartograph and a multiplex outfit and therefore capable of transforming a photo mosaic into a well contoured and controlled map.

The Photo Company with the Army Signal troops would concern itself primarily with ground photography, but its facilities would certainly be available for emergency work in developing and printing new photos and repairing aerial cameras.

The Aerial Photograph

Nothing more than a machine-made, but man-interpreted substitute for maps or for visual reconnaissance. When we break that down we see that aerial photography is employed tactically as follows:

Employment of Aerial Photography

1. Substitute for Maps.
2. Furnish Details on Existing Maps.
3. Detect Enemy Camouflage.
4. Determine Adequacy of our own Camouflage or cover.
5. Substitute for Visual Reconnaissance for following reasons:
   a. Comparative safety of photo missions.
   b. Comparatively better appreciation of military indications by trained intelligence personnel.
   c. Less interference by ground haze.
   d. Comparatively less time to cover a certain area.
6. Furnish accurate record of aperiodic changes.
7. Allow detailed study of projected bombardment subject.
8. Confirm efficacy of artillery or bombardment operations.

Interpretation of Aerial Photographs

The interpretation of aerial photos is the job of trained intelligence personnel in corps or higher units. In the Air Corps we should find such personnel in the GHQ Air Force G-2 Section.

Yet every person supplied with an aerial photo will, or must, make studies thereof and interpret those details in which he is primarily interested. The Bombardment Group Commander is certainly able and willing to interpret photos of destruction wreaked by his bombers; these photos, let us say, having been taken by a reconnaissance squadron in his group and developed and printed in his organic photo section.

Photo interpretation is covered in Training Regulations 210-10.

Limitations of Aerial Photography

Photography must not be thought of as

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a panacea, or cure-all, for the ills of practical aerial observation. The commander will do well to understand these limitations before embarking on an ambitious photographic enterprise, or resorting too quickly to the camera when visual observation or existing maps do not come up to his expectations.

The aerial photo of a wooded area seldom shows trails or roads through such woods. Here, low-flying visual reconnaissance, or better yet, ground reconnaissance, is necessary to fill in such valuable means of communication. Visual reconnaissance is still the best method of conducting artillery adjustment. Surveillance of moving troops, fleets, trains, etc., is best conducted visually.

Also, it takes time to develop photographs and print them so that they may be interpreted without error. Not only the actual time of developing and printing must be considered, but also the time of taking the camera from the plane to the photo hut and the print from the hut to the interested commander. An observer's report of a visual reconnaissance mission can often be dropped directly from the airplane to the CP of the commander concerned.

Aerial photography means the use of one more piece of expensive, complicated, and none too plentiful item of procurement - the aerial camera.

Details of Tactical Employment of Photography

1. Substitute for Maps.- We are prone to think of the United States as completely mapped on the Gettysburg or Leavenworth basis, yet until emergency Federal units recently started mapping work, only about 46% of this country had been carefully mapped. Some of these maps were 50 years old. We could say, roughly, that only about 25% of the country was satisfactorily mapped.

Some of our service school maps have the legend, "surveyed in 1902," or "edition of 1911" or "1918."

How much of Siberia is mapped? Or China, Canada, or Mexico? The answer is- "very little."

Situation.- A Field Army is advancing into unmapped territory of which little is known. Obviously, the army commander would request, and probably be furnished, more than the one organic Topographic Battalion to enable him to keep the supply of maps up to the demand therefor. But let us further imagine the enemy barring the operations of our ground reconnaissance units with their topographic personnel attached.

The solution appears to be to concentrate on mosaic mapping; the Air Corps to take the photos and the Engineers to convert them into maps and distribute them.

2. Furnish details on Existing Maps.- We may expect to find aerial photographs used to a great extent to furnish details on existing maps.

It should be borne in mind that:

Not all existing maps are on such large and readable scale as 1/21,120.

Mere enlargement of a map will not furnish any more details on such map, and

Not all maps are up-to-date.

An artillery commander is given the mission to "harass enemy reserves beyond Wolf Hill." There are insufficient airplanes or balloons on hand to furnish artillery adjustment for the artillery unit given that mission. Ground observation posts do not allow observation on all parts of the woods NW of Wolf Hill (see Gettysburg, 3" = 1 mile, map). Reserves would normally be held under cover in the woods. The map shows the extent of woods to the NW of the hill, but the map was made in 1925, over 11 years ago. Due to lack of observation, both ground and air, map firing is necessary. As this form of firing is at best wasteful of ammunition, the artillery commander will use every endeavor to place his fire where the enemy reserves are: in the wooded areas only, without firing into too general an area. He is furnished an aerial photo made some time previously of the Wolf Hill area.

If there is one thing in which an aerial photo excels, it is that of showing wooded areas very clearly. Using recognized points on Rock Creek and State Highway No. 231 on the photo for control points, the artilleryman is able to determine the scale of the photo and its position on the map. As it is in an "odd" scale, he does not grid the photo, but prefers to transfer the outlines of the wood patches to the map which he uses for his firing data.

3. Detect Enemy Camouflage.- Air photos are invaluable in this work. Camouflage is often so effective that it is not detected by the eye of an observer at normal working altitudes. A stereoscopic examination of a photo of a suspected point or area will often disclose the height dimension.

Photographs, while invaluable, are not infallible. This brings to mind the following use for air photos:

4. To Determine the Adequacy of Our Own Camouflage or Cover.- When an establishment, certain materiel or body of troops are so well camouflaged that they cannot be detected in a photo of their area, their commander knows two things:

a. Further expenditure of effort or materiel is hardly necessary, and

b. It is quite probable that his troops, etc., will not be picked up by the enemy (unless, of course, motion invalidates the effect of the camouflage).

5. Substitute for Visual Reconnais-

sance, due to:

a. Comparative Safety.- One of the faultiest bits of air observation technique in time of peace is that of hovering about the observed area, to enable the observer to make a thorough survey of the terrain; especially over a (simulated) enemy position. No account is taken of the probability that, in time of war, the enemy would be shooting real, and not simulated, bullets at the observation airplane.

Situation.- Very effective antiaircraft machine gun fire is being encountered from a ridge in enemy territory, making exceedingly costly in airplane and flying personnel, the aerial observation of that ridge. Enemy entrenchments are suspected along the ridge, and the observation teams have been given the mission of locating such entrenchments or confirming their absence. This calls for low-altitude missions on account of the wooded nature of the ridge. Low altitude flying results in the airplanes being easy targets for the enemy ground gunners.

Solution.- A low altitude photo mission, flown just once, at high speed along the ridge; a strip mosaic or a series of obliques at the suspected line.

The resultant photos can then be:

b. Studied by Experts at Leisure.- There is no doubt but that the average Air Corps officer with any considerable observation experience would make a better-than-average observer such as was found in the various air services during the World War. Yet very few of them could pick up, from the air, the difference between a Type A or Type B troop train, or between a regiment of 155-mm. howitzers or 155-mm. guns on the road.

An aerial photo of such subjects, however, would allow a thorough study by presumably experienced intelligence personnel equipped with reference data, measuring instruments, reading glasses, etc. Where there was doubt as to interpretation, others could be called in for consultation.

c. Advantages During Ground Haze.- The infra-red filter, now in use, when placed over a camera's lens will penetrate a fog or haze which is absolutely impenetrable to the human eye. An aerial photo can easily be taken, using such a filter, through a light fog 500 feet thick.

Night photography is somewhat in this category. One sharp flash of the flare-bomb and a click of the camera's shutter might make possible a record of things on the ground which could not be collected by visual reconnaissance without the aid of more parachute flares than one plane could carry, provided the photo-plane crew had first located the objective and pointed the camera at it.

D. Aerial Photography may Save Time.- Air photos may be used to gather information when time is a vital factor. Against the time required for an observer to make a sketch, count the number of trucks on a road, gauge the road-length of a column, etc., must be balanced the time required to develop and print the photographic shots of these subjects, provided photographs are as acceptable to the commander as the observer's report and description. In this respect an observer's report will often accompany a photograph, thus orienting the photograph and further describing event thereon.

One often reads articles describing quick-process photographic printing and developing. It has been the experience of the military that time saved in turning out a print is often lost by its poor quality making interpretation of details difficult, or by the impossibility of rapidly reproducing extra copies. The commander should bear this in mind in ordering photographs "in a hurry," or a large number of copies. Wet prints have been turned out in 20 minutes or less. However, they are wet prints and not comparable in quality to prints turned out in 1½ hours or more. Much progress has been made in speeding up these processes, but there are many links (men and processes) in the chain of photo production from the time the airplane lands until the print is delivered to the commander concerned. One slow man, or a delay in a process slows up the time of delivery. "Minimum time", shown below, has been bettered many times, but we are considering here actual field service conditions with equipment now on hand.

The following table shows reasonable time requirements for photo missions from time of order to delivery of print:

	Minimum	Normal	Small Strip Mosaic
Transmittal of order, and preparation for mission.	:05	:20	:45
Flying time: (average)	:30	1:00	2:00
Delivery from landed plane to photo hut	:05	:10	:10
Develop, wash, print, assemble	:40	1:30	2:00 (Minimum)
Delivery to Division Commander	:10	:20	:20
Total	1:30	3:20	*5:15

*A strip mosaic - 6000 feet altitude. Scale - 1/6,000 Exposures - 200.

50% overlap in line gives covered area of 70 miles x .85 miles ( ) or (30% overlap laterally - 3 strips) - 23 x 1¾ miles gives a good photo strip of Susquehanna River and its banks from Harrisburg Bridge to Marietta.

6. Photographs Present Accurate Record of Status.- Enemy operations are often estimated by the deviations of the enemy from the normal or routine. The same observer covering an area day after day can efficiently compare daily or other periodic activities of the enemy in a certain area or along a certain route. However, it is unwise to count on the continued availability of any one observer. A number of photographic records of activity along a route or in an area taken at regular intervals of time can be compared by intelligence personnel without recourse to lengthy observer's reports gathered by different observers with varying standards of proficiency and experience and through the dint of considerable flying time over enemy territory.

7. Photographs Allow Detailed Study of Possible Bombardment or Attack Aviation Objectives.- Objectives important enough to be attacked are often important enough to their possessors to be defended. One photographic airplane flying past with the observer taking photographs might not draw the fire of anti-aircraft artillery defenses, as the latter desire to maintain the secrecy of their emplacements; unless sure of bringing down their target. A lengthy surveillance or aerial inspection (hovering) would be more likely to draw fire, especially where the bombardment or attack commander or his S-2 or S-3 would come low enough to take in details visually, thereby presenting a most favorable target.

An aerial photograph, or series of photographs, of an objective could be examined by the commander and his staff in preparation for an attack against such objectives, with a minimum danger to the personnel concerned.

8. Confirm Efficacy of Bombardment of Artillery Operations.- Photographs of such operations, taken by accompanying airplanes, serve two purposes:

a. Irrefutable evidence of claims made by the commander concerned, and
b. Allow a study of projected operations against undamaged portions of the objective or target.

In other words, "one picture is often worth 10,000 words."

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Being somewhat of a large squadron and sometimes assuming the appearance of a combination mobilization and recruiting depot, the 5th Air Base Squadron at Hamilton Field, Calif., under the command of Lieut. Colonel Calvin E. Giffin, Air Corps, and consisting of 312 men, is rapidly rounding into shape.

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airplanes recently placed in service have shrunk the map of the United States, and now it is only 15 hours from coast to coast, and New York 8 hours from Miami.

ANOTHER ERRAND OF MERCY IN PANAMA

"Aerial ambulance work in this land of no highways and no railroads is not infrequent, says the Albrook Field Correspondent, and he then goes on to say that "Colonel A.W. Campanole, Military Attache to Central America, recently required an immediate operation. But - he was in San Jose, Costa Rica, and good hospital facilities were in Panama. Our Bellanca transport was the only answer, and on October 22nd Captain C.A. Ross flew it to Costa Rica, accompanied by Lieut. G.L. Mason in a P-12. Due to the great areas of uninhabited jungle in Central America, a ship never goes cross-country unaccompanied - just in case.

The flight up was uneventful, but on the return trip bad weather forced the two ships down at Puerto Armuelles, about 250 miles East of Panama City. The next day the trip was completed, and Colonel Campanole was taken to Gorgas Hospital, where he successfully underwent an operation.

Captain Ross did a fine job in taking the heavily loaded Bellanca out of the poor field at San Jose, and a poorer field at Puerto Armuelles - and therefore receives our nomination for Bellanca Pilot, First Class."

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COAST ARTILLERYMEN STUDY AIR TACTICS

Five officers from the 63rd Coast Artillery at Fort MacArthur, Los Angeles Harbor, learned all about the Air Corps recently at March Field. At any rate, they absorbed as much as they could during a two weeks' contact course. The quintet of anti-aircraftmen were Majors P.J. Lloyd, A.M. Laurence, D.M. Griggs, 1st Lieut. H. McFeeley and 2nd Lieut. Foster Murphy.

Flying in Bombardment and Attack planes in the afternoon and studying ground maintenance technique and tactic in the morning, the five Coast Artillerymen did not find time hanging too heavily on their hands. Their instructor-in-chief, Major Early E.W. Duncan, reports that they were so enthused with their course that they borrowed several texts on Attack and Bombardment tactics that they might become more thoroughly versed in the science of air fighting.

One of their most interesting mornings was spent in the 23rd Photographic Section under the guidance of the section commander, 1st Lieut. Kenneth B. Hobson. The study of the processes necessary to produce photographs and mosaics of "enemy" areas enabled the officers to visualize the amount of man hours necessary to produce air photographs for the ground arms. The training had a peculiar significance, placing these officers in the role of air attackers instead of ground opponents of Bombardment airplanes.

MANEUVERS OF 30TH BOMBARDMENT SQUADRON

Flushed with health and renewed enthusiasm, the officers and enlisted men of the 30th Bombardment Squadron returned to their home hangar at March Field, Calif., on October 13th, after what they termed an enjoyable ten days at the Long Beach Airport. They attributed their health and high spirits to the cool temperatures of the famous beach resort and the healthfulness of living under canvas.

Major Albert F. Hegenberger, Air Corps, well known pilot and navigator of the "Bird of Paradise" transport plane on the first successful flight to Honolulu in 1927, is the commanding officer of the 30th Squadron. At the conclusion of the maneuvers he stated:

"Our maneuvers and range practice in the Pacific Ocean off Long Beach have been attended with success. Two of our enlisted gunners, Staff Sergeant Morris D. Smith and Sergeant Charles L. Hunley, were given experts' ratings as a result of their good work at the bomb releases. A total of 207 bombs were fired."

Major Hegenberger and other members of his squadron commented with enthusiasm on the favorable reception given to the organization by the citizens of Long Beach and the lengthy publicity given it.

The First Wing Headquarters at March Field assumed that an enemy fleet was lying several miles off Long Beach. Brigadier General Delos C. Emmons, deciding to remove this menace, ordered that the Thirtieth move its eight Martin Bombers, 90 enlisted men, 4 flying cadets and 11 officers to the Long Beach Airport and bomb the enemy ships.

To simulate the fleet of the enemy and to provide a good target for the Coastal Cops, as they are colloquially known in Southern California, aluminum powder flasks were dropped on the Pacific Ocean, making spots the approximate size of the target to be bombed. These were dropped by airplanes of the Squadron immediately preparatory to the bombing.

One hundred-pound bombs, composed of water and sand without powder, were used. The splash was enough to tell the bombardiers whether or not they had scored a hit. Air machine gunnery on sleeve targets was another activity of the Squadron at which some measure of success was obtained.

Four planes each were assigned to Flight "A," commanded by 1st Lieutenant Herbert G. Montgomery, and to Flight "B," in charge of 2nd Lieutenant John P.T. Hills. Administration, supply and the mess were supervised by 2nd Lieut. Wilson H. Neal. The engineering and chemical-armament officer was 2nd Lieut. William W. Gross, while operations and intelligence was under 2nd Lieut. Albert T. Wilson.

Other maneuvers which Lieut. Colonel Hubert R. Harmon, commander of the 19th Bombardment Group, has announced for his unit include those of the 32nd Bombardment Squadron, October 19th to 24th, at Long Beach. The entire 19th Bombardment Group will encamp at the Bakersfield Airport from November 2nd until the 7th. The 19th consists of 15 planes and 250 enlisted men, with about 40 officers. The organizations composing it are the 19th Bombardment Group Headquarters Squadron, the 30th and 32nd Bombardment Squadrons and the 38th Reconnaissance Squadron.

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GHQ INSPECTORS VISIT HAMILTON FIELD

Inspecting officers of the GHQ Air Force arrived at the Hamilton Field Air Base on September 30th for their annual inspection, remaining for six days, during which time they inspected records and noted the efficiency of the personnel in the operation of this air base. The party was headed by Lieut. Colonel Robert Olds, Inspector, GHQ Air Force, Langley Field, Va. Upon the completion of the inspection, the party left for March Field, the next inspection point.

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SURPRISE VISIT BY GENERAL BRANT

Brigadier General Gerald C. Brant, Wing Commander, 3rd Wing, GHQ Air Force, Barksdale Field, La., paid a surprise visit to the Hamilton Field Air Base on the afternoon of October 5th when, after flying from Sand Point Field, Seattle, Washington, he set his Northrop Attack plane down on the field for an overnight stay. He was enroute to his command at Barksdale Field, having completed over half of his extended navigation training flight.

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MODEL AIRPLANE FLIGHTS AT MOFFETT FIELD

Large crowds from the San Francisco Bay area display considerable interest in the model airplane flights and contests which are held at Moffett Field, Calif., every week. In the contest held on Sunday, October 11th, one young fellow was flying a gas powered job which had been flown approximately 155 hours. Due to undetermined causes, the plane failed to gain sufficient altitude to clear the airship hangar, struck head on and crashed to the ground a complete wreck.

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Lieut. Colonel Richard H. Ballard, Air Corps, was recently appointed Commanding Officer of France Field, Panama Canal Zone, his previous duties as Post Operations Officer being taken over by Lieut. William H. Tunner. Major Willis R. Taylor was appointed C.O., 7th Observation Sqdn.

SEARCHLIGHT PRACTICE AT MARCH FIELD

RED hat corded soldiers from Fort MacArthur's anti-aircraft unit, the 63rd Coast Artillery, braved the late and somewhat unseasonal heat of March Field in September and the first half of October for their annual searchlight practice. It was expected that the summer heat would abate during the autumn, but the Fahrenheit reading at one time during the encampment crept up to 106 degrees, the hottest September day at March Field since 1932, when it was 108.

Officers of Battery "A," of the 63rd, the official designation of the searchlight unit, were pleased with the good showing made by the battery. They stated that the sky probing unit was hampered by two factors, the great number of recruits acquired during the calendar year and the over age status (ranging from 1925 to 1929) of the searchlights competing with 1936 airplanes.

In the course of the preliminary practice, only one Bomber, the command plane of the First Wing Headquarters Squadron, or one from the 19th Bombardment Group, was used in the nightly problem. Many persons from Riverside, Redlands and other surrounding communities were enthralled by the beauty of the huge pencils of lights piercing the darkness, finally fastening themselves on a Martin Bomber. These six lights used eight hundred million candle power each. So powerful were the lights that they were easily discernible from Riverside, ten miles away.

In the final or record problem, twelve planes were employed with the approximate hour of arrival unknown to the ground defenders of March Field. While six swift, low diving Attack planes endeavored to put the mechanical ears or sound locators out of business and blot out the searchlights, the six Bombers from the 19th Bombardment Group roared down on March Field intent on its "destruction."

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RETIREMENT OF SERGEANT WEBB.

First Sergeant Orvil E. Webb, of Headquarters and Headquarters Squadron, 8th Pursuit Group, GHQ Air Force, Langley Field, Va., was retired on September 30, 1936, following the completion of over 30 years of honest and faithful service in the United States Army.

Sergeant Webb first entered the service on the 10th day of August, 1907, and since that date has served in the Infantry and the Air Corps.

The best wishes of all the personnel of Headquarters and Headquarters Squadron, 8th Pursuit Group, go with Sergeant Webb on his well earned retirement.

MORE "DOPE" ON 30TH BOMB. SQDN. MANEUVERS

The Scribe for the 479th Pursuit Squadron, Air Reserve, Army Air Base, Long Beach, Calif., writing under date of October 16th, says that "Last week the new runways on the east end of the airport were officially opened to traffic, and the Army end of the Municipal Airport took on the semblance of war as the 30th Bombardment Squadron from March Field arrived and took over that end of the field as a base for ten days of field exercises.

Major Albert F. Hegenberger, Commander of the 30th, brought over some thirteen officers and ninety enlisted men, not to mention the flock of Martin Bombers and field equipment. The primary purpose of the exercises was gunnery practice - to fire for record, but upon arrival the Major found some one had sent him some 270 bombs, so he decided the best thing to do was to take them out and drop them on the ocean, and thereby gain some very desirable experience on 'studied pattern bombing in formation.' Four officers fired for record, two making "Expert" and two 'Marksmen.' At luncheon on October 9th, the Major entertained officials of the Chamber of Commerce and the Aviation Commission. The latter assured their host that a bigger and better field is being planned and that when he comes over for future exercises there will be more room and more runways.

The 30th Squadron took off for their home station late Tuesday (October 13th), stating they were very well pleased with their operations, having flown 220 hours without an accident of any kind."

The News Letter Correspondent added that on October 19th the 32nd Bombardment Squadron from March Field will follow-up, staging their field exercises by the still glowing camp fires left by the 30th Squadron.

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NEW TRANSPORT FOR SAN ANTONIO AIR DEPOT

On October 9th, the San Antonio Air Depot, Duncan Field, Texas, received its anxiously-awaited new C-33 Transport, the first in that Supply Area, from the Douglas Aircraft Company, Santa Monica, Calif. It was ferried to the Depot by Captain D.J. Ellinger, Operations Officer of the Depot, pilot, with Master Sergeant C.P. Smith as co-pilot, and Staff Sergeant C.E. Bright and Corporal R.L. Cole, of the 3rd Transport Squadron, as mechanics. The Depot flyers are now familiarizing themselves with the operation of this commodious new job before putting it into regular service.

The News Letter Correspondent states that with the acquisition of this new airplane air transportation in that area will be greatly facilitated.

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ACTIVITIES OF THE 33RD DIVISION AVIATION

By 1st Lieut. Monro MacCloskey, Adjutant,
33d Div. Aviation, Illinois National Guard

SEPTEMBER proved to be a poor month for the aviators of our Squadron. The weekend holiday over Labor Day was occasioned by good weather, and many of us took advantage of it by going on 500-mile navigation flights. The remaining weekends of the month, however, were accompanied by such bad weather that even the sparrows were walking down Cicero Avenue.

On the 25th and 26th of September we received a visit from the Air Corps Technical Supervisor, Fairfield Air Depot, Major Oakley G. Kelly and his assistant, Staff Sergeant Frank D. Blair. We had hoped to demonstrate to them our proficiency in the art of close order drill, but there was a driving rain on our drill night and the ships had to be kept in the hangar - so our doughboy drill was out.

Four of us had an opportunity to renew acquaintances at the National Guard convention at Providence, Rhode Island. Leaving here on the afternoon of October 7th, we spent the first night in Cleveland, the second night in Albany, and arrived in Providence early on Friday. We carried one mechanic and three ranking officers of the Division. So many of the same pilots from other squadrons attend year after year that it is always a gay reunion.

Our return trip was made most expeditiously. We cleared Providence at 9:05 a.m., Sunday morning, and landed at Buffalo at 1:15 p.m., where we serviced ourselves as well as the ships. We landed again at Detroit for service, and our third stop saw us in Chicago at 8:50 p.m., in spite of a 20-mile head wind most of the way. It was a pleasure to call up the homes of two of our passengers (who had trained out of Providence for fear they would be unable to keep appointments in Chicago on Monday) to leave word of our arrival.

We thought we had done a pretty good job of a cross-country that day in O-38's, but our skipper, Major C.A. McElvain, really showed us up. On that same Sunday, he left Dallas at 3:00 p.m. in an O-31. Three hours and 25 minutes later, he landed at Leavenworth for service. Taking off again at 7:30, he landed in Chicago at 9:50 p.m., having covered over 900 miles in a little less than seven hours, of which one hour was spent on the ground.

All officers of the 33rd Division in Chicago and vicinity were recently ordered to attend a program of demonstrations at the 132nd Infantry armory. I am frank to write that most of us looked forward to a dull evening, but it turned out to be not only instructive, but enjoyable. Stands had been erected on the floor of the armory for the officers, while their guests had balcony seats. An amplifier system was used, which functioned perfectly. The demonstrations were: Use of field glasses in designating targets; 75 mm gun squad drill; point in advance guard; functioning G-3 Section; 75 mm battery supporting Infantry battalion in attack; group instruction methods; troop leading exercise on murals; caliber .22 machine gun firing into sand box. The exhibitions were put on by various units of the Division, and when necessary two exceedingly large murals were referred to. Incidentally, the 8th Infantry (colored regiment) put on the demonstration of "Point in Advance Guard." When the "get-away" man told his duties, he proved he knew the meaning of "get away." Thus, all the officers had an opportunity to refresh their knowledge on points long since forgotten.

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COOPERATIVE MISSIONS WITH HAWAIIAN N. G.

A flight of three Keystone Bombers, under the command of Major Idwal H. Edwards, Air Corps, recently flew from Luke Field to Maui for a stay of two days, during which a series of cooperative missions were carried out in connection with the annual encampment of the 299th Regiment, Hawaii National Guard, at Wailuku. Missions included target towing for machine gun fire and simulated bombardment attacks.

While landing at Maalaea Airport, notorious for tricky wind conditions, Major Edwards was forced off the runway into soft ground, causing his plane to nose over. Sufficient damage was done to necessitate dismantling the plane and returning it to Oahu by means of the steamer "Royal T. Frank." The remainder of the flight returned upon completion of their mission on Maui on September 25th.

In addition to Major Edwards, the following officers participated: 1st Lieuts. Clinch, Egan, Gilger, Armstrong, Summerfelt, and 2nd Lieuts. Altman and Capp.

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The 35th Pursuit Squadron, Langley Field, Va., reports that all pilots qualified as EXPERT AERIAL GUNNERS at the end of the gunnery season, with the exception of one pilot, who has been on detached service for the past eight months.

Training of rear-seat gunners is now in progress, and from the scores made in practice runs it looks as though the "Rear-Seat Drivers" will do more than uphold the Squadron record.

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PERSEVERANCE BRINGS REWARD
By the Bolling Field Correspondent

SIXTEEN years ago, E.R. Janson, now a Sergeant in the Signal Corps and weather forecaster at Bolling Field, D.C., started the pastime of putting notes in bottles and tossing them into the ocean to be carried away by the tides and currents, hoping that some day he would get an answer and be able to learn something about the currents from his experiments. At that time he was enroute from Germany to the United States and sent out two bottles. Since then he has traveled about 19,000 miles over the water and continued his experiments, using bottles, cans, and even a few meteorological balloons, such as are used for obtaining speed and direction of winds aloft for aviators.

While in the vicinity of Newfoundland, Sergeant Janson and his companions sent out several notes. Later, when out on boat excursions from Atlantic City, N.J., he sent out notes at different times, and again while at Miami, Fla., he continued his experiments. While in the service at Panama, he sent out notes from both the Atlantic and the Pacific sides. From Panama he also sent out balloons with notes attached. In his belief, these balloons should have drifted north after reaching the stratosphere, and he hoped to obtain some information on air currents from them.

Upon the completion of his tour of service at Panama, Sergeant Janson left for New York City aboard the CHATEAU THIERRY. About 400 miles from Panama, the transport passed Navasso Island, marked by a lighthouse, but uninhabited because of the lack of fresh water. While passing the island, he dropped three bottles containing the usual notes. Up to that time he had never heard from any of his notes, although in each one he wrote his name and address and guaranteed the return of postage used in writing to him.

After getting back to the United States, Sergeant Janson took up his duties as forecaster at Langley Field, Va., and from there transferred to Bolling Field, where, shortly after his arrival, he was rewarded for his years of effort. To his surprise, he received a letter from Lawrence Faust and Raymond Brown, living near Beaumont, Texas, and stating that they found a bottle on the shore of High Island, not far from Beaumont. According to their report, the bottle had not been there more than half a day and the note was dry and well preserved. The distance the note traveled was about 1500 miles by the northwest route - past Nicaragua and along the coast to Texas - in the elapsed time of 98 days from June 20, 1936, to September 27, 1936.

Sergeant Janson estimates that he has sent out thirty or forty notes, and though he has received only one answer at present, he plans to continue his experiments.

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BUREAU OF AIR COMMERCE TESTS NEW PLANE

The Bolling Field Correspondent states that the Bureau of Air Commerce, Department of Commerce, is testing at Bolling Field a new light plane which, if successful, will revolutionize air travel.

The plane is a small wingless cabin autogiro, manufactured by the Pitcairn Autogiro Company at Willow Grove, Pa. It has seating capacity for two, side by side, and is powered by a seven-cylinder 90 horsepower Pobjoy engine, located in the fuselage behind the pilot and passenger. The engine is geared to the tail wheel for travel on land, and drives the propeller by a long shaft going through the cabin. The front wheels are steered by an apparatus similar to that on an automobile. The autogiro can be flown to any suitable landing place and in a few minutes after landing is ready for travel on land, just as any automobile. The rotor blades fold back over the fuselage and the power is transmitted to the rear wheel instead of the propeller.

On land the speed of the plane is 25 miles per hour, and its flying speed is 90 miles per hour. On a recent test flight, the giro was landed in a small park area in front of the Department of Commerce building and driven through the streets of Washington to Bolling Field.

This plane is another one of the several small types being tested by the Bureau of Air Commerce in its effort to find one which can meet all requirements of safety, economy and ease of operation and still be sold at a very reasonable price for mass production.

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AIR TRANSPORTATION POPULAR WITH THE COMMANDER OF HAWAIIAN DEPARTMENT

Major General Hugh A. Drum, Commanding General of the Hawaiian Department, recently boarded an Amphibian airplane of the 5th Composite Group, piloted by his air aide, Major Phillips Melville, and was flown to Hilo, Hawaii. Although he had now flown to any extent since the World War, General Drum, during the year and a half he has commanded the Hawaiian Department, has made considerable use of an OA-4A for inter-island flights, and to inspect defensive positions of Oahu during Department Maneuvers and at other times. Major Melville's foreign service tour was extended in order that he might be added to General Drum's staff.

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NEW ORGANIZATION IN 2D BOMBARDMENT GROUP

The Headquarters and Headquarters Squadron of the 2nd Bombardment Group, Langley Field, Va., was redesignated on September 1, 1936, with 14 officers and 78 enlisted men. Captain John H. McCormick assumed command of this organization on September 1st, assisted by 1st Lieut. Clifford H. Rees as Squadron Engineering, Operations and Transportation Officer and 2nd Lieut. Russell L. Waldron as Squadron Adjutant.

The organization was accomplished rapidly, and in a very short time this unit was functioning smoothly. The principal functions of the unit have been the clerical work in the 2nd Bombardment Group Headquarters, Transportation and Supply. The Headquarters and Headquarters Squadron has two B-10B airplanes at the present time and expects to receive more planes in the near future. The organization, while young, was fortunate in obtaining well trained personnel, and the results obtained from this unit have been more than satisfactory.

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THE 21ST RECONNAISSANCE SQUADRON

The 21st Reconnaissance Squadron, GHQ Air Force, was reconstituted at Langley Field, Va., on September 1, 1936, with two officers and 19 enlisted men. The organization was moved immediately to their new quarters in the lighter-than-air area.

The principal function of the organization at the present time is the maintenance and operation of the Navigation School of the 2nd Bombardment Group and the two amphibian airplanes assigned for the use of the School.

Although the Squadron, as reconstituted, is very young and in the act of getting started, its work is beginning to take form and is proving satisfactory in a great many respects.

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RADIO TELEPHONY ON THE ISTHMUS

A day or so ago, writes the Albrook Field Correspondent, Colonel Frederic H. Smith, General Staff Corps, was seated at his desk in Department Headquarters at Quarry Heights. The telephone rang. He answered it and held a conversation with General Brett. That all sounds normal enough - but General Brett was in a P-12 airplane, 6,000 feet above Colonel Smith!

Lieut. D.F. Henry, Wing Communications Officer, is responsible for this radio sleight-of-hand. Through a complex arrangement of practically everything under the sun - he calls it "Goldie," with apologies to Rube Goldberg - he has made it possible for any airplane to hold a two-way conversation with any telephone on the Isthmus.

Take notice, married cross-country pilots - now you can 'phone the wife to come and get you instead of buzzing forty sets of quarters!

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ACTIVITIES AT LONG BEACH, CALIF.

Considering our limited equipment, says the scribe for the 479th Pursuit Squadron, Air Reserve, Army Air Base, Long Beach, Calif., the current training year has gotten off to a good start, averaging about 450 flying hours per month. Sundays are the big days, with about 20 officers on the flying line, keeping our seven old and very faithful PT's in the air from early morn until late afternoon. Operations consist principally of tactical problems applicable to the equipment and locale.

The Regular Army made a pretty big scoop in our Reserve ranks the first of October by handing out Regular commissions to four of our Reserve officers - Leslie Raybold, Don O. Darrow, Wm. M. Brown and Radcliffe C. Clausen - and calling Maurice E. Glaser to three years' active duty. Glaser is a double loss, as he was our one and only enlisted pilot, and the Post personnel waved him goodbye regretfully.

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ASCERTAINING PATTERNS MADE FROM BOMBS

The 9th Bombardment Squadron, Hamilton Field, San Rafael, Calif., has been engaged in an experiment, directed by the Commanding General, 1st Wing, GHQ Air Force, to ascertain the patterns resulting from bombs dropped from various types of formation. Additional airplanes and whole flights have been attached from the 11th and 31st Bombardment Squadrons when necessary to make up a 9-airplane formation. The outlines of a target were laid out on the southeastern section of Mather Field, Calif., the bombs were dropped without powder charges and the distances from the outlined target to the places where they fell were measured with a tape after each mission. The following factors were varied and used in various combinations and the resultant pattern checked:

1. Distance in formation.
2. Interval in formation.
3. Stepped-up and stepped-down formation with several differences in altitude.
4. Altitude.
5. Speed.
6. Wind direction.

An attempt was made to keep the releases in formation as nearly simultaneous as possible. Two lights were installed on the bomb bay doors of the leading airplane, one signaling time of sighting operation, and the other signaling the time of bomb release.

V-7135, A.C.

AIR TACTICS DEMONSTRATION TO KIWANIANS

A crowd of Kiwanians from the California-Nevada District, estimated at about two thousand, thronged the taxying mat at March Field, Riverside, Calif., on October 8th as the guests of Colonel John H. Pirie, the base force commander.

The visiting business men were thrilled by the many demonstrations of national defense which their fellow Kiwanian, Colonel John H. Pirie, Air Corps, had arranged for them. Colonel Pirie is a charter member of the Arlington, Virginia, Kiwanis Club.

Particularly breath taking and a novelty to many of the base force members was the dropping of parachute bombs on a field two miles away. This was only a preparation for the raining of lighter parachute bombs on the landing mat only a few hundred feet from the spectators. The demonstration gave Southern Californians one of their first practical lessons in attack plane bombing or ground strafing.

Other air maneuvers, such as flying in various formations, greatly interested the spectators as the dust from the parachute bombs still hung over the ground.

A feature which greatly pleased officials of the Kiwanis organization was the ground salute given by the nine Attack planes. They reversed the mediaeval fashion by performing their air maneuvers first and then taxying in front of the reviewing balcony in air base headquarters. In the manner of knights of old, they then taxied sharply to the left and returned to their hangars.

Among the distinguished visitors were Messrs. A. Copeland Callen, of Urbana, Ill., International President of Kiwanis; Charles R. Crooke, Mountain View, Calif., the District Governor; and Ernest G. Button, President of the Riverside Chamber of Commerce.

Battery "A" of the 63rd Coast Artillery, together with detachments from other batteries, were present to give demonstrations of searchlights and artillery gun operation.

Talks were given on Coast Artillery work by Captain Arnold D. Amoroso and Harry A. Aldrich, of the 63rd Coast Artillery, the former touching on the searchlights and allied equipment and the latter covering other phases.

Shops and hangars were open during the day for Kiwanians and other civilians desiring to visit them. Demonstrations were given of parachute packing.

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During September, the Engineering Department of the San Antonio Air Depot, Duncan Field, Texas, overhauled a total of 85 engines and 20 airplanes, and repaired 17 airplanes and 27 engines.

"CHANGES FOR THE BETTER IN MISSOURI"

The 35th Division Aviation, Missouri National Guard, recently made several improvements in the recreational facilities for the enlisted personnel. The enlisted men's clubhouse has been moved to a location nearer to the hangar and several improvements have been made.

The large clubhouse has been painted, newly roofed, and papered. Adequate toilet facilities have been installed and improvements affected on the rathskellar. The floors have been refinished and all needed repairs have been made on the furniture in the club. Steam heat has been installed and the enlisted men are very enthusiastic in their anticipation of entertainments during the coming winter months.

The grounds about the clubhouse are now in the process of being landscaped. A project is in the making whereby the enlisted men will have a concrete tennis court, a volley ball court and a baseball diamond, in order to further the athletic activities of the enlisted personnel.

In the near future this organization hopes to be in a position whereby the enlisted personnel of other Air Corps organizations will be extended invitations to visit and participate in the recreational facilities now being completed.

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ACTIVITIES OF 77TH PURSUIT SQUADRON

With the exception of two night formation flights, the last days of September were devoted by the 77th Pursuit Squadron, Barksdale Field, La., to squadron gunnery missions at New Orleans, La.

Everyone was concerned with the boresighting of his ship, planning how to get by on the finances left at the end of the month, packing and performing his regular squadron duties.

While at the Shushan Airport at New Orleans, full time was devoted to the problem of working up a good squadron average score, everyone exchanging advice, profiting from the mistakes and working from 5:45 a.m. until about 4:00 p.m. This concentration of effort resulted in rewards in the form of good scores, and flying time. All the beginners learned how to handle the gun and airplane while trying to hit a moving target.

Says the News Letter Correspondent: "New Orleans greeted us with mosquitoes capable of drilling holes in the toughest hides and let us have thunder showers by the dozens. But we all enjoyed the work, the struggle to get meals, trips to town and famous spots, and the fellowship of the gang when finally off duty.

---oOo--- V-7135, A.C.

IMPRESSIONS OF BRITISH PILOT DURING RECORD-BREAKING ALTITUDE FLIGHT

IN a statement he gave to the press, following his flight on September 28th, during the course of which he reached an unofficial altitude mark of 15,230 meters (49,967 feet), Squadron Leader F.R.D. Swain, of the British Royal Air Force, stated that at first he climbed in wide circles until he reached 40,000 feet, when he turned South-East and continued to climb for another 5,000 feet. At low levels there was a cold and fairly strong north-westerly wind. This grew into hurricane force in the upper air. Into this he turned and made a straight climb into wind to avoid the danger of being blown out to sea.

At 46,000 feet, Squadron Leader Swain stated he found the light was almost dazzling. Warned of this through his experience on previous flights, he had had the upper surfaces of the wings and fuselage of his plane painted black to reduce the glare. The sky above him was a very deep blue, although not dark enough for the stars to be visible. The change in the color of the sky is due to the fact that there is no dust or moisture in the air to split the rays of light and no clouds above 35,000 feet.

The air was so clear that when ten miles north of Brighton he could see the English coast line from Margate to Land's End, and northwards to the Wash. London appeared like a tiny toy town, and the Thames and other rivers like narrow silver ribbons. The Channel Islands between England and the coast of France looked like stones in a river bed. He admitted that at that height he felt small and lonely. England seemed a very minute country, and he felt he could easily be blown beyond its borders.

It was necessary for him to concentrate on his instruments so as to get the correct speed for attaining the maximum height, as the controls at extreme heights were not sensitive, and height might be lost by neglect of the instruments. He kept constant watch on the air speed indicator, the oxygen pressure gauge, the suit pressure gauge, the compass, clock, altimeter and fuel gauge. At this time the pressure suit was causing him a little discomfort. Some difficulty was experienced in moving his limbs and he felt a slight cramp in his right arm, but he had no difficulty in breathing. He remarked that without the special suit worn on this flight he could not have remained conscious at above 40,000 feet or so.

Before starting he had been warned that his altimeter was over-registering to the extent of about 1,000 feet. Consequently, at 50,000 feet he was afraid he had not beaten the record, so he continued to climb until the altimeter showed 51,000 feet. Here he found he could climb no higher, so he decided to call it a day. With only enough fuel left for about 45 minutes of flying, he throttled back and began to glide. He was then almost over the Bristol Channel and could see the Welsh mountains. When he glided down about 5,000 feet, the celastoid window of his helmet hazed over, as did the windows of the cockpit. He could not see any of his instruments and admitted that this worried him considerably. He could not read his compass, but he could just distinguish the glare of the sun to the east and so, knowing he was over the West of England, flew towards the light, constantly losing altitude. This he did in an erratic manner, for he was locked up in his diving suit, and to all intents and purposes blind.

Then he began to feel that he was being suffocated. Becoming gradually weaker, he came to the conclusion that he was running short of oxygen, and he tried to press the relief lever to open the cockpit cover but could not make it function. Actually, it was found afterwards that this lever was working quite properly, but at that time Squadron Leader Swain was so exhausted that he was unable to operate it.

Then he tried to get to the ripping panel on his suit so that he could get his head out, but encumbered as he was with the suit, his parachute harness, etc., he could not find the fastener. In desperation he grabbed the knife which had been hung within his reach in the cockpit specifically for such an emergency and hacked out the window of the helmet.

The fresh air blowing in through the gap in the window made him feel much better. He was now at 14,000 feet somewhere over Yeovil, so he steered east and continued to lose altitude until he reached Salisbury. When he landed at Netheravon he had only two gallons of fuel left.

The British aviation journal FLIGHT states that, although Swain had the impression that the oxygen supply was failing, it did not really do so. The feeling which he experienced was due to his exhaustion. To fly in his special suit at 50,000 feet was the equivalent of flying with an ordinary oxygen mask and electrically heated clothing at 35,000 feet. Any pilot who flew with the ordinary equipment at 35,000 feet for two hours would naturally be exhausted at the end of it. Swain had been up much longer than had been anticipated (his flight took altogether 3 hours and 20 minutes) and it had taken him an hour to climb the last thousand feet.

Swain explained the frosting of the windows by saying that as he came down from dry atmosphere above 35,000 feet into the area of moisture his engine was throttled down, and consequently he got less warmth in his cockpit from the arrangement by which hot air was introduced from the oil coolers.

He said that he was very disappointed with the flight, because he had hoped to get higher, but it should be remembered that this was the first attempt on this type of airplane.

The minimum atmospheric pressure measured during the flight was 92.0 millimetres of mercury, and the lowest temperature was -49.8 deg. centigrade. Both of these measurements were at the highest point attained.

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THE DIVING SUIT IN THE HIGH ALTITUDE FLIGHT

Touching on the diving suit worn by Squadron Leader Swain during his altitude flight, above

described, the British aeronautical publication The Aeroplane states that, because the pressure of the atmosphere at 50,000 feet is but one-ninth of what it is at sea-level, the pilot had to be put either into an air-tight cabin or an air-tight suit.

Group Captain G. Struan Marshall, of the Central Medical Establishment, Royal Air Force, who was in charge of the medical research in connection with the flight, has set out the reasons which make such enclosure necessary. He explains that human beings are physiologically adapted to breathe air, of which one-fifth is oxygen, at a pressure of 15 lbs. per sq. in., but they can continue to live, if they do no appreciable amount of physical work, should the atmospheric pressure fall to a little more than half of this, as it does at 18,000 feet.

Above this height, as there is not enough oxygen in the air, the deficiency can either be overcome by increasing the amount of oxygen in the air breathed by the pilot, or by increasing the pressure within his lungs - in fact, by supercharging them. The former method is the easier, and is in normal use, but even when carried to the limit, which would be to supply the pilot with absolutely pure oxygen, the method is theoretically inadequate for heights much above 43,000 feet, though previous records above this height have been achieved by making use of this method.

Above 43,000 feet, therefore, some means has to be found to increase the pressure in the lungs, either with or without extra oxygen. For physiological reasons this cannot be done to any useful extent without balancing the pressure within the lungs with that outside them, so that the immediate atmosphere around the pilot has to be kept at a pressure not less than that of the atmosphere at 43,000 feet, as was stated on the authority of Mr. Cyril Uwins after his height record in 1932.

This can be done by enclosing the pilot either in an air-tight cabin or in an air-tight suit. The former is rather better from the point of view of the physiologist, but the latter is preferred by the aircraft designer,- hence the diving suit of Squadron Leader Swain.

This was produced by Siebe, Gorman and Co., Ltd., as a result of the work that the late Professor G.S. Haldane, F.R.S., and Sir Robert Davis did in conjunction with the Air Ministry. The pressure inside this suit can be automatically maintained at a predetermined value.

As the onset of oxygen starvation is dangerously insidious and indeed is usually denied by the sufferer, the pressure inside the suit has to be as high as possible compatible with the pilot's adequate freedom of movement. Obviously if the pressure inside the suit is too great the pilot finds movement and control of his limbs unbearably difficult.

On the record attempt the pressure inside the suit was equivalent to that of the atmosphere somewhere between 32,000 feet and 35,000 feet. Protected by such a suit, Squadron Leader Swain had been taken in the low-pressure chamber at Farnborough to a "height" of 80,000 feet without undue discomfort, and has been subjected to temperatures of -60° Centigrade.

The suit is made in two pieces of rubberized fabric, of which the top part carries a helmet with a large curved window of celluloid-like material. The suit is made air-tight round the waist with a pipe-clip type of joint. The breathing circuit is of the closed type, and into it oxygen is fed. The oxygen jet is the driving element of a small injector which produces rapid circulation of gas around the system.

From the injector the gas passes through a flexible tube into the helmet on the right side of the face and circulates round the latter to an outlet on the left. The gas, which now contains the exhaled breath, passes down a flexible tube to a canister in which are chemicals to absorb the carbon dioxide and moisture from the exhaled breath. It is then recirculated.

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GRADUATION OF STUDENTS FROM RANDOLPH FIELD

When the March, 1936, class started training at the Air Corps Primary Flying School at Randolph Field, Texas, it was, in point of size, the smallest class entering this school for quite a number of years. The class consisted of 5 officers of the Regular Army, 7 Air Corps enlisted men, 3 enlisted men from other branches of the service, and 49 candidates from civil life, total 64. The civilian and enlisted students pursued the course under the status of Flying Cadet.

When graduation day rolled around, 35, or 55% of these flying students (3 officers and 32 Flying Cadets) were successful in completing the eight months' intensive course of primary and basic training at Randolph Field, and on October 9, 1936, were transferred to the Advanced Flying School, Kelly Field, Texas, for the last four months of the year's training. These graduates specialized in the various branches of combat aviation, as follows:

OBSERVATION

Capt. James R. Anderson, Ord. Dept.	Wis.
2d Lt. John K. Brown, Jr., F.A.	Minn.
2d Lt. Jack W. Hickman, C.E.	McCook, Neb.
Henley V. Bastin, Jr.	
Sterling G. Harvey	Bloomsburg, Pa.
Aaron R. Hoffeditz	Greencastle, Pa.

ATTACK

Clyde Box	Denton, Texas
James R. DuBose, Jr.	Aiken, S.C.
William E. Eubank, Jr.	Bluefield, W. Va.
Elbert Helton	Clifton, Texas
Wallace E. Nau	Pasadena, Calif.

PURSUIT

Jacob J. Brogger	Butterfield, Minn.
Walter H. Dillingham	Honolulu, Hawaii
Joseph F. Hunker	San Diego, Calif.
Steele R. Patterson	Seneca, S.C.
Henry G. Thorne	Fort McPherson, Ga.
Hubert Zemke	Missoula, Mont.

BOMBARDMENT

Julian M. Bleyer	Tulsa, Okla.
Philip G. Cochran	Erie, Pa.
Lloyd H. Dalton, Jr.	Ottawa, Kans.
Dwight E. Herrold	Long Beach, Calif.
Edward G. Hillery	Boonton, N.J.
Donald W. Macdonald	San Francisco, Calif.
Thomas E. Margrave	Gordon, Neb.

BOMBARDMENT (Continued)

William K. McNown	Lawrence, Kans.
Thornton K. Myers	Lafayette, Ind.
Norris Perry	Sedro-Woolley, Wash.
James W. Phelps	Berwyn, Pa.
Jack L. Schoch	New Ulm, Minn.
Eugene H. Snavely	Harlingen, Texas
David A. Tate	Asheville, N.C.
Robert A. Theobald	Portland, Ore.
Sam P. Triffy	Detroit, Mich.
Harold E. Watson	West Hartford, Conn.
Earl B. Young	Sidney, Neb.

All of the three officers graduating from the Primary Flying School are West Pointers, Capt. Anderson being a member of the 1926 Class, and Lieuts. Brown and Hickman of the 1935 Class.

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TRAINING ACTIVITIES IN PANAMA

Action: Under the direction of Brigadier General George H. Brett, new 19th Wing Commander, the Air Force of the Panama Canal Department is now well started on its new program of training. Cooperating with the Coast Artillery, the Wing is now engaged in a problem which will extend over a period of a year and a half. This problem, of course, concerns the defense of the Canal, but the Air Corps is used alternately as attacking and defending force. One day a week, sometimes two, Bombardment, Observation and Pursuit take off with blood in their eyes and gas in the belly tanks, ready for practically anything.

Each week brings a different phase of the main problem. One week the Air Force may be Reds - the Attack (Pursuit doubling in Attack) theoretically neutralizing the fire of the various anti-aircraft installations, while the Bombers aim for their various objectives. Again, the Pursuit and Observation may be Blues trying to prevent Red Bombers, simulating carrier-based enemy, from reaching the Canal. The Bombers are forced to guess their release lines, which is highly unsatisfactory where split second timing is of such vital importance. Because of the fact that the Keystone Bombers are for the time being out of commission and that the B-10's are all assigned as long distance reconnaissance, there is some scurrying when a Bomber is wanted.

Influenced by the requirements of these Wing problems, squadron training recently has stressed the various types of Pursuit attack on Bombers.

Discussion of 'string' versus 'vee' has certainly raised the conversational noise level. But, no matter what the formation, a P-12, even an 'F,' just leers and says 'No!' when you urge it to catch a B-10. However, where there is a will, there's a way, and Major George H. Beverley, in charge of training, has a will. Recently, with two string formations of Pursuit vainly endeavoring to get excess speed over two B-10's acting as 'meat,' so that they could make an attack from above, they finally accomplished this seemingly impossible task. The approved solution consisted of Major Beverley flying along at 1700 RPM in a P-12, with a chastened Martin on each wing! After that the Pursuiters forgot that they were flying antique chariots, and the attacks proceeded without difficulty.

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AIR CORPS MANEUVERS AT BAKERSFIELD, CALIF.

Bakersfield, Calif., is the scene this month and until November 18th of one of the greatest series of Army Air Corps maneuvers held in any West Coast municipality in recent years. The 19th Bombardment Group and the squadrons of the 17th Attack Group are holding field exercises at the Bakersfield airport.

A constant stream of olive drab-clad soldiers will filter into the airport at various times between October 19th and November 18th, it is stated. The latest types of Bombardment and Attack airplanes will be used in these problems, giving the citizens of Bakersfield a good opportunity to learn about the planes used by the Army's General Headquarters Air Force.

Brigadier General Delos C. Emmons, Commander of the First Wing of the GHQ Air Force, who made the announcement concerning the maneuvers, stated that the main object of camping at the airport would be to give the officers and enlisted men opportunities for training in the operation of a military airdrome in the field.

Five hundred enlisted men and over 100 officers will pass through the airport at different periods. There will never be more than 350 enlisted men and 50 officers encamped at Bakersfield at one time, it was stated.

The 34th Attack Squadron, numbering 8 officers and 77 enlisted men, was the first unit to take the field, leaving March Field for Bakersfield by truck and airplane on the morning of October 21st, at 10:00 o'clock. It was commanded by 1st Lieut. Nathan Bedford Forrest, great grandson of the famous Confederate raider. The air caravan numbered 7 Northrop Attack planes and 2 old type Boeing P-12 Pursuit planes. This will probably be the last occasion the P-12's will be used in the San Joaquin valley. They were scheduled to remain in Bakersfield until October 28th.

Leaving Bakersfield on the morning of the 28th, they probably passed enroute the Golden Bears of the 73rd Attack Squadron, commanded by Major L.C. Mallory, and numbering approximately the same number of officers and enlisted men. The 73rd was the next organization scheduled to take over the Air Corps exercises at Bakersfield. Major Mallory led the recent nonstop flight to San Antonio with five Northrop Attack planes. The 73rd will remain at Bakersfield until November 4th.

The next unit of the 17th Attack Group to take over Army training at the Bakersfield airport will be the famous 95th Attack Squadron, known throughout the Army for its record in France, where it participated in 240 air combats. The 95th is commanded by 1st Lieut. Ernest H. Lawson. Its squadron exercises will continue until Armistice Day, November 11th, when the remainder of the 17th will arrive by plane and truck from the home air base at March Field. The three units to reinforce the 95th will be the 34th and 73rd Attack Squadrons and

the 17th Attack Group Headquarters Squadron. The 17th Attack Group, commanded by Lieut. Colonel Carlyle H. Wash, will consist of about 50 officers, over 200 enlisted men and 24 of the newest Northrop Attack planes. The work of the 17th at Bakersfield will consist mainly of dispatching Attack planes daily to the Muroc Bombing and Gunnery Range, Muroc, Calif., for bombing and gunnery.

As the 17th has only been equipped with the Northrop Attack planes since July, this range practice will be the first exercises with them. Glide bombing, which consists of coming down in a steep glide preparatory to attacking the target, will be one of the features of squadron and group training. Bombing will be restricted to an altitude of one thousand feet or more, it is stated.

All of the units will return to March Field on November 18th.

Captain Philip Schwartz, First Wing Ordnance Officer, states that six carloads of bombs, totalling 2500 of the 50-pounders, will be used in the exercises.

As previously announced at March Field, eight Bombers of the 32nd Bombardment Squadron, commanded by Major Walter R. Peck, A.C., held maneuvers at Long Beach from October 19th to 24th. Bombing of aluminum powder spots on the water was the principal activity and was participated in by enlisted men only, as commissioned bombardiers qualified at other times. Previous to the bombing, aluminum powder flasks are dropped on the Pacific Ocean just off Long Beach. Bombs loaded with water and sand are employed, as the splash tells whether a hit has been scored or not.

Group maneuvers of the 19th Bombardment Group will take place at Bakersfield between November 2nd and 7th, when 40 officers and 250 enlisted men will be encamped at the Municipal Airport. The camp will be in charge of the Group Commander, Lieut. Colonel Hubert R. Harmon. The organizations in the 19th Bombardment Group are the 30th and 32nd Bombardment Squadrons, the 19th Bombardment Group Headquarters Squadron, the 38th Reconnaissance Squadron and the 23rd Photographic Section.

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RETIREMENT OF NONCOMMISSIONED OFFICERS

Effective October 31, 1936, Technical Sergeant Edward J. Hudson, Base Headquarters and 1st Air Base Squadron, Air Corps, Langley Field, Va., and First Sergeant Fred J. Shafer, 73rd Attack Squadron, March Field, Calif., were placed on the retired list. Technical Sergeant Hudson was advanced on the retired list to the rank of first lieutenant, under the provisions of the Act of Congress, approved May 7, 1932.

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Fourteen second lieutenants of the Air Corps Reserve were, in accordance with Special Orders of the War Department, recently issued, ordered to duty in the Hawaiian Department, viz: Martin Ansel Bateman and William Hogan Clark from Brooks Field, Texas; Earl Eugene Bates, Jr., Jack Wilson Berry, Jack S. Marks and Richard P. Schumacher from Selfridge Field, Mich.; Graeme Stewart Bond, Howard Collins Denison and Benjamin Grey Holloway from Scott Field, Ill.; Emil Silvan Scott and Joseph Abbott Thomas from Langley Field, Va.; Abraham Donley Olson and Paul Waterman from Mitchel Field, N.Y., and Gilmore Vincent Minnis from Barksdale Field, La.

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NINETEENTH ANNIVERSARY OF 19TH AIRSHIP SQUADRON

The 19th Airship Squadron, Moffett Field, Calif., celebrated its nineteenth anniversary on September 25th. On this occasion, the Squadron was host to the entire garrison at a picnic held at Searsville Lake, a distance of 18 miles from the field. Various forms of entertainment made the day pass quickly. The field events for children, varying in ages from 3 to 15, added much amusement for the elders. The site for the picnic was well selected, as it features the best boating and swimming in this region.

It seems appropriate to review a few highlights of the 19th Airship Squadron.

Originally organized as the 19th Balloon Company at Fort Omaha, Neb., the organization sailed for France on October 21, 1918. After a short assignment at the United States Balloon School at Souye, France, the Squadron returned after the Armistice to the United States, arriving on April 4, 1919. It was demobilized at Mitchel Field on the 29th of that month, and in July of that year reorganized at Langley Field, Va., as the 19th Airship Company. There the Squadron remained until November, 1935, when the War Department decided that sunny California afforded a better climate for the failing health of many of the old timers, and the Squadron was transferred to Moffett Field.

The 19th, being the oldest airship operating unit in the United States Army, has many noteworthy flights and records to its credit. These flights involved the first landing on the roof of a building in a large city for delivery of U.S. mail; the landing of an airship on a steamer at sea, namely, the "American Trader," in 1928; the landing on the plaza of our Capitol in Washington, D.C.; the continuous non-stop flight of 1855 miles; several flights of long duration without refueling, the longest of which extended to 77 hours.

The Squadron has been instrumental in completing many engineering tests in cooperation with the Air Corps Materiel Division in the development of Lighter-than-Air craft and allied equipment. Although the Squadron has not been cited, the first two Cheney Awards went to members of the Squadron. Master Sergeant H.H. Chapman won the first award by his heroism in rescuing members of the ROMA crew when she was destroyed by fire at Norfolk, Va., in 1922. The next Award went to Lieut. Uzal G. Ent for heroism shown in the National Balloon Race in 1928, when he remained in his burning balloon in an attempt to save the life of his pilot, Lieut. Paul Evert, who, unknown to Lieut. Ent, had already been killed by a lightning bolt.

The entire Squadron looks back over its past with pride on its achievements and with the conviction that whenever called upon the organization will not be found wanting.

WASHINGTON OFFICE NOTES

Major General O. Westover, Chief of the Air Corps, and Brigadier General A.W. Robins, Chief of the Materiel Division, flew to Scott Field, Ill., on October 23rd, for a conference. General Westover flew his A-17, while General Robins flew in an A-17 piloted by Lieut. Colonel Oliver P. Echols.

During his recent trip in the east, General Arnold visited the following aircraft factories: Wright Aeronautical Corporation, Paterson, N.J.; Seversky Aircraft Corporation, Farmingdale, L.I., N.Y.; Sikorsky Aircraft, Bridgeport, Conn.; Pratt & Whitney Aircraft, Hartford, Conn.: Bell Aircraft Corporation and Curtiss Aeroplane and Motor Co., Buffalo, New York, and the Fairchild Aircraft Corporation, Hagerstown, Md. General Arnold was also in attendance at the Mitchel Trophy Race at Selfridge Field, Mich.

On October 24th, Colonel Rush B. Lincoln and Lieut. Colonel Rosenham Beam returned from an inspection trip to Maxwell Field, Ala., and to the Valparaiso, Fla., Bombing Range. While on this trip they also inspected Reserve activities at Dallas, Texas, and in Oklahoma, and mobilization plans at Barksdale, Randolph, Brooks, Kelly and Chanute Fields.

Lieut. Colonel Ross G. Hoyt, accompanied by Captain D.F. Stace, departed October 24th to accomplish a ferrying trip from California to Mitchel Field, N.Y.

Major M.H. McKinnon returned October 24th from a ferrying trip to Farmingdale, N.Y.

Visitors to the Chief's Office during the course of navigation flights were: Colonel Frank M. Kennedy, Commanding Officer of Scott Field, Ill.; Lieut. Leon R. Brownfield from Scott Field, Ill.; Major Otto G. Trunk from Langley Field, Va.; Major Edward M. Morris from Barksdale Field, La.; and Major John V. Hart from Kelly Field, Texas.

Officers on duty at the Materiel Division, Wright Field, Ohio, who recently visited the Chief's Office for conference on various matters, were Colonel Frederick L. Martin and 1st Lieut. C.L. Munroe. Major Carl F. Greene and Captain R.H. Kenner, of the Materiel Division, were in Washington on October 28th, for the purpose of conference with the National Advisory Committee for Aeronautics.

Majors Robert Kauch and Rowland C.W. Blessley left on ferrying missions, the former to Atlanta, Ga., and the latter to California.

Col. Herbert A. Dargue, of the Air Corps Tactical School, Maxwell Field, Ala., was recently on temporary duty in the Chief's Office.

Lieut. Colonel Robert L. Walsh returned October 17th to his duties in the Reserve Division, following an inspection trip.

Lieut. Colonel Gerald E. Brower and Major William B. Souza returned from temporary duty at Wright Field, Ohio, and Major Alfred W. Marriner from Langley Field, Va.

Major Charles Y. Benfill returned October 18th from a navigation flight to Selfridge Field. Incidentally, he was in attendance at the Mitchel Trophy Race.

First Lieut. Marvin L. Harding, of Hamilton Field, Calif., was a visitor while enroute to Langley Field.

First Lieut. Kenneth R. Crocher, of Barksdale Field, La., arrived October 23rd for a conference.

Major Edward V. Harbeck, Jr., of the Inspection Division, left October 27th on an inspection trip to Barksdale Field and the Air Corps Training Center.

Major Oakley G. Kelly, Technical Supervisor, Inspection Division, accompanied by his technical assistant, Staff Sergeant Frank D.Blair, will sail on November 11th for the Panama Canal Department to make an inspection of Air Corps activities.

Major Henry H. Peily, Technical Supervisor, Inspection Division, accompanied by his technical assistant, left on an inspection trip to the Air Corps Tactical School, Maxwell Field.

Captain James W. Spry left by air on October 27th on an inspection trip connected with National Guard and Reserve matters.

Major Malcolm C. Grow, Medical Corps, Flight Surgeon, returned October 21st to his duties in the Chief's Office from a navigation flight to Wright Field.

Major Karl S. Axtater and Captain Evers Abbey, of the Buildings and Grounds Section, Supply Division, returned October 25th from a brief leave of absence.

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Contributions of Material for the Air Corps News Letter are earnestly solicited from Randolph, Mitchel, Brocks, Maxwell and Chanute Fields.

LIEUT. COLONEL P.E. VAN NOSTRAND

Lieut. Colonel Percy E. Van Nostrand, Air Corps, now serving a tour of duty in Washington as a member of the War Department General Staff, was born on August 6, 1887, at Washington, Iowa. He graduated in 1912 from the State University of Iowa, receiving an A.B. degree.

After serving as a commissioned officer in the Iowa National Guard Infantry from August, 1909, to February, 1913, he accepted, on March 3, 1913, a commission as second lieutenant in the Infantry, Regular Army. He was promoted to 1st Lieutenant on July 1, 1916; to Captain, May 15, 1917, and to Major, Signal Corps, October 23, 1917.

During the World War, Col. Van Nostrand was one of the early settlers at Kelly Field, Texas, and he was Adjutant of that post until May 14, 1918, when he was transferred for duty as a student at the Army Balloon School at Fort Omaha, Neb. Upon the completion of the lighter-than-air course at that school he was, on August 15, 1918, rated as a Balloon Observer. He remained at Fort Omaha, serving as Executive Officer, until December 26, 1918, when he reported for duty as Executive Officer, Balloon and Airship Division, Office of the Director of Air Service, Washington, D.C. During his tour of duty in Washington, he served at various times as Acting Chief of the Balloon and Airship Division and was a member of several boards and committees, among them the Aeronautical Board and the Helium Board.

For several months during the latter part of 1921, Col. Van Nostrand was on temporary duty in England in connection with the inspection of the airship R-38. He was also on temporary duty in France and Germany in connection with airship activities. Shortly following his return to Washington, in October, 1921, he was temporarily assigned to duty at Langley Field, Va., as a student at the Airship School and, upon the completion of the course of instruction, he was, on January 21, 1922, assigned as Acting Assistant Chief of the Lighter-than-Air branch of the Training and War Plans Division and Chief of the Schools Section, Office of the Chief of Air Service.

In November, 1922, Col. Van Nostrand was assigned to duty as Army observer in connection with the airship ZR-1 at the Naval Aircraft Factory at Philadelphia, Pa. In March, 1923, he was assigned to duty at the Naval Aircraft Station at Lakehurst, N.J., to take a rigid airship training course.

From March to July, 1924, he was on temporary duty at Brooks Field, Texas, and he was then transferred to the Advanced Flying School at Kelly Field, Texas, where he completed the course in advanced observation. During the two years following, he completed the course at the Air Corps Tactical School at Langley Field, Va., and the Command and General Staff School at Fort Leavenworth, Kansas.

He began his tour of foreign service in the Hawaiian Department in August, 1926, being on duty as Commanding Officer of Luke Field and the 5th Composite Group until August, 1929, when he returned to Langley Field for duty as Instructor at the Tactical School. In May, 1931, when the Tactical School was moved to Maxwell Field, Ala., he was in command of that post to August 11th of that year, and served temporarily as Acting Commandand of the Tactical School. Thereafter, until July, 1932, he was Executive Officer at Maxwell Field.

Upon his graduation from the Army War College in June, 1933, Col. Van Nostrand was on duty for a year as Assistant Commandant of the Air Corps Technical School at Chanute Field, Rantoul, Ill. He then returned to Washington to pursue the one-year course of instruction at the Army Industrial College and, following his graduation therefrom in June, 1935, he was detailed as a member of the War Department General Staff.

Col. Van Nostrand was commissioned in the Air Service as a Major, October 16, 1920, and was promoted to his present rank on August 1, 1935. He holds the aeronautical ratings of Balloon Observer, Airship Pilot and Airplane Observer.

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LIEUT. COLONEL ROBERT GOOLRICK

Lieut. Colonel Robert Goolrick, now on duty at Barksdale Field, Shreveport, La., was born in Virginia, June 9, 1888. He graduated from the Virginia Polytechnic Institute with the degree of B.S. in Electrical Engineering in 1907. Commissioned a second lieutenant in the Regular Army, October 5, 1908, he served in the Coast Artillery until July, 1920, when he transferred to the Air Service. He was promoted to 1st Lieutenant, December 2, 1910; to Captain, July 1, 1916; to Major (temporary) March 7, 1918; to Major, July 1, 1920, and to Lieut. Colonel, May 24, 1933.

During the World War, Col. Goolrick served in France from October, 1917, to January, 1919, commanding the 1st Anti-Aircraft Artillery. During this period he was detailed with the British Army for five months near Ypres, and later with the French 7th Army in Alsace. He was in three major offensive battles with the American Army. He was awarded the Croix de Guerre by the French GHQ.

Upon his return to the United States, Col. Goolrick was assigned to duty at Fort Hunt, Va., in the coast defenses of

Washington.

Assigned, in July, 1920, to the Air Service Primary Flying School at Carlstrom Field, Arcadia, Fla., for flying training, Col. Goolrick completed the course in March, 1921, and was then assigned as a student at the Air Service Observation School at Post Field, Fort Sill, Okla. Upon the completion of the advanced flying course, he was rated as "Airplane Pilot," effective October 14, 1921. In January, 1922, he assumed command of Air Service troops at Pope Field, Fort Bragg, N.C.

In August, 1923, Col. Goolrick reported for duty at Wheeler Field, Schofield Barracks, Hawaii, and was assigned to the command of the 17th Composite Group. On January 15, 1924, he assumed command of the 4th Observation Squadron. On October 25, 1924, he was detailed as Department Air Officer. Upon the completion of his tour of duty in Hawaii, he was transferred to Langley Field, Va., where, in October, 1926, he began the course of instruction at the Air Corps Tactical School. His graduation in June, 1927, was followed by another year of duty as a student at the Command and General Staff School at Fort Leavenworth, Kansas.

Assigned as Commanding Officer, 2nd Cavalry Division Aviation, Marshall Field, Fort Riley, Kansas, July 13,1928, Col. Goolrick remained on this duty until July 5, 1931. In May, 1929, he was given the additional assignment of instructor at the Cavalry School at Fort Riley.

Transferred to Wright Field, Dayton, Ohio, he commanded that field and was Chief of the Administration Section, Materiel Division, until August 19,1933, and Acting Executive and Executive until June 15, 1935, when he was transferred to duty at Barksdale Field, La.

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50TH SQDN. LEARNS ABOUT OPERATION OF B-12

The 50th Observation Squadron, which is now equipped with B-12A "Reconnaissance" airplanes, recently left Oahu for Morse Field, South Cape, Hawaii, to go into the field for two days for the purpose of determining problems involved in the maintenance and operation of their new planes on the outlying islands. A navigation problem was carried out on the flight to Hawaii, which was completed without incident. Upon arrival, a camp was established in the grounds of the lighthouse, South Cape, and arrangements completed for a stay of several days. It immediately developed, however, that the existing fuel storage could not be used satisfactorily, as it necessitated taxying the airplanes for a considerable distance over soft and uneven ground, with a consequent danger of overheating the engines. Operations were accordingly curtailed and, after spending the night in camp and collecting considerable data relative to the field and facilities, the flight took off and returned to Luke Field.

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NEW BASIC TRAINING PLANES FOR RANDOLPH

The Secretary of War, Hon. Harry H. Woodring, recently announced the award to the North American Aviation, Inc., of Inglewood, Calif., of an order for 117 Basic Training airplanes.

The total contract, which includes an adequate provision for supply of the necessary spare parts, amounts to $1,452,600. These Training planes are being procured for use at the Air Corps Primary Flying School, Randolph Field, where future American military pilots are now being trained.

The Act of Congress increasing the complement of airplanes in the United States Army Air Corps to 2320 will involve a corresponding increase in the requirements for pilots. In order to meet this demand, the War Department is taking steps at the present time to provide the best possible training facilities in developing, at the Air Corps Training Center, the additional pilots required.

The basic training plane now being purchased is a great advance in design over the basic trainer which has been in use since 1930. The new basic trainer is a single-engine biplace low-wing monoplane, and is powered with the Wright R975-7, single row radial engine developing 400 horsepower. The high speed and landing speed of this plane is intermediate between that of the Primary Training planes and the modern fast combat planes in use in tactical units.

Advances in airplane design during recent years, with a corresponding increase in speed and complexity of equipment on modern aircraft, have made it more necessary than ever to provide an intermediate plane between the two.

Although somewhat slower, this plane is very similar in appearance and general handling characteristics to the modern pursuit planes, and at the same time has the ease of maintenance, combined with sturdiness of construction which is required in a training plane.

The plane is the result of cooperation between the civilian designers, the Experimental Division of the Army Air Corps and instructors at the Air Corps Training Center, and is another proof of the effectiveness of modern American aviation.

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Albrock Field, Panama Canal Zone, needs help. The News Letter Correspondent says that anyone having a good idea for preventing Panamanian natives from tearing down the wind socks on outlying landing fields, please communicate with Lt. D.D. Graves. The natives use the socks for shirts, oddly enough.

Obituaries

CAPTAIN CHARLES H. HOWARD, AIR CORPS

An airplane accident on the night of October 25th, near Bryan's Mill, Texas, cost the lives of Captain Charles H. Howard and Corporal Edward N. Gibson, Air Corps, both of whom were stationed at Langley Field, Va.

Captain Howard, who enlisted in the Aviation Section, Signal Corps, during the World War, was an efficient and capable officer, an expert pilot, and was particularly well versed in the field of radio communications.

Born at Ashland, Oregon, December 29, 1892, he attended grammar school in Oceanside, Calif.; high school in Prescott, Arizona, and was a student for two years at the University of Arizona.

During the World War he enlisted in the Signal Corps, and after serving for a brief period with Company C, 322nd Field Signal Battalion, Fort Lewis, Washington, he was transferred to Kelly Field, Texas, where he served with the 84th Aero Squadron until April, 1918, when he was assigned to take the ground school course at the School of Military Aeronautics, Texas State University, Austin, Texas. Transferred in July, 1918, to Souther Field, Americus, Ga., for his flying training, he qualified as a Reserve Military Aviator and, on November 7, 1918, he was commissioned a second lieutenant in the Aviation Section, Signal Corps, and placed on active duty with the flying department at Souther Field.

In January, 1919, Captain Howard was transferred to Love Field, Dallas, Texas, and assigned to the engineering department. He also served as Adjutant in addition to performing other duties. From September, 1921, to February, 1922, he was on duty in the aviation repair section at the San Antonio Air Depot.

During the next four years, Captain Howard's duties related mainly to radio communications. He pursued the course of instruction at the Air Service Communications School at Post Field, Fort Sill, Okla.; then the radio instruction course at the Signal School at Camp Vail, N.J., and on July 12, 1923, he was assigned to the Technical School at Chanute Field, Rantoul, Ill., for duty as Instructor in the Communications Department.

In January, 1926, Captain Howard was transferred to the Panama Canal Department, where he served for three years, being on duty with the 7th Observation Squadron at France Field for two years, and with the 25th Bombardment Squadron in the remaining year.

From Panama, Captain Howard was transferred to Rockwell Field, Calif., where he was assigned to the 11th Bombardment Squadron. He also served as Communications Officer of the 7th Bombardment Group. Later, when the Squadron was transferred to March Field, Calif., he was placed in command thereof. A noteworthy flight was performed by this organization when Captain Howard was placed in charge of the Navajo Indian Relief Expedition to Arizona in January, 1922. The Navajo Indian Reservation had been visited by a severe snow storm which isolated it from surrounding communities, and the Indians were facing starvation. The planes under Captain Howard's command carried food supplies, which were dropped at the various Indian villages. The activities of this Bombardment squadron in transporting and dropping food supplies consumed the better part of a week, and no untoward incident occurred despite the hazardous nature of the flying, due to the extremely rugged terrain. This flight was considered the most meritorious one performed by Air Corps personnel for the year 1932, and Captain Howard, for his leadership thereof, was awarded the Mackay Trophy.

During the school year, 1933-34, Captain Howard was a student at the Air Corps Tactical School at Maxwell Field, Ala.

During the summer of 1934, Captain Howard piloted one of the B-10 Bombardment planes in the Army Alaskan Flight, from Washington, D.C., to Fairbanks, Alaska, and return. This aerial expedition of ten B-10 airplanes was commanded by Brigadier General Henry H. Arnold. The flight was completed according to a prearranged schedule in exactly one month. In addition to his duties as pilot, Captain Howard served as Assistant Communications Officer of the expedition.

Following his graduation from the Tactical School, Captain Howard was assigned to duty in the Training and Operations Division, Office of the Chief of the Air Corps. He was appointed a mem- of the Air Corps Radio Communications Board.

Following the establishment of the HQ GHQ Air Force, Captain Howard was transferred to Langley Field, Va., where he was placed on duty as Chief of the Communications Section with the trmporary rank of Major.

Captain Howard had to his credit over 4,000 hours' flying time. He was the author of various articles dealing most interestingly and convincingly subjects in which he particularly spe-

cialized - Bombardment Aviation and Radio Communications.

Corporal Gibson, with the exception of the year 1927, was in the military service continuously since October 3, 1923, the date he enlisted in the Air Corps. He was a native of West Virginia, and was born at Centralia on July 31, 1902. During his career as an Air Corps enlisted man, he served with the 2nd Observation Squadron in the Philippines; the 5th Observation Squadron, the 8th Airship Company, the 2nd Balloon Company and the 96th Bombardment Squadron.

The Air Corps extends its deep sympathy to the bereaved families of these men who died in the service of their country.

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ALERTNESS AVERTS SERIOUS CATASTROPHE

But for the alertness of Sergeants Norris and Musser, of the 20th Bombardment Squadron, Langley Field, Va., the service test of a new type of bombing flare would have ended in tragedy.

A B-10B airplane had just been loaded with six of these flares and, during the final check of the flares on the bomb racks, Sergeant Norris detected the ticking of the timing mechanism of one of them. Quickly realizing the seriousness of the situation, and with a total disregard for their own personal safety, Sergeants Norris and Musser removed the flare and the latter started to dash away with it in his arms. Just as Sergeant Musser was about to emerge from underneath the left wing of the plane, the flare exploded, setting fire to the plane. The force of the explosion threw the Sergeant to the ground. Lieut. A.H. Rogers, the pilot scheduled for the test mission, was in the plane preparing for the take-off at the time of the explosion. In making his exit from the burning plane, he sprained an ankle.

Sergeant Musser sustained slight injuries from the force of the explosion. The fire was extinguished, but not before the left wing of the plane was destroyed.

The handling of this serious situation, says the News Letter Correspondent, was particularly noteworthy, since the plane in which the trouble developed was parked in the center of a group of six B-10B Bombardment planes and, had the fire reached a gas tank, it is very probable that all six of them would have been destroyed.

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REORGANIZATION OF THE 49TH BOMBARDMENT SQUADRON

Squadron reorganization was a matter of considerable interest in the 49th Bombardment Squadron, Langley Field, Va., for the past several weeks, and already the advantages accruing from the new set-up are apparent. The enlisted personnel was increased by 27 men, which greatly facilitates the maintenance of squadron ships.

Separate barracks have also been assigned, and the organization of a separate mess is being enjoyed by the men. The increase of squadron personnel was especially timely, as preparations were under way for the Fort Leavenworth maneuvers, in which the 49th was to be represented by nine B-10B's and full combat crews. The tentative take-off was planned for the morning of September 22nd.

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THE AIR DEMONSTRATION AT FORT LEAVENWORTH

The Correspondent of the Kansas City TIMES, describing the air demonstration given by the General Headquarters Air Force at Sherman Field, Fort Leavenworth, Kansas, on September 25th, states that the event was witnessed by approximately 10,000 spectators crowded on the bluff west of the Missouri River and overlooking the flats on which the field is located. The guests of Brigadier General Charles M. Bundel, Commandant at Fort Leavenworth, were seated on a natural rock ledge overlooking the entire performance.

The demonstration was under the direction of Brigadier General H.C. Pratt, Commander of the Second Wing, GHQ Air Force. All maneuvers were directed from the ground by Lieut. Colonel Carl Spatz, Executive Officer of the 2nd Wing, through the two-way radio system.

In the first event, a flight of six Attack planes attacked a marching column of troops, using a simulated mustard gas. The liquid used was lime water and spotted the blue denim clothing of the marching troops. The Attack planes were flying at a low altitude when the simulated gas was released.

Following the gas raid, the flight of Attack planes was attacked by 18 Pursuit planes. This event gave an excellent conception of the protection which may be given a marching column of men by a squadron of Pursuit planes.

A group of targets representing an infantry battalion on the field was then bombed by nine Attack planes, each carrying twenty 30-pound bombs. The attack was made from approximately 500 feet altitude at a speed of 220 miles an hour.

Immediately after the bombing by the Attack planes, three Bombardment planes dropped nine 100-pound bombs on a circular target and then returned, dropping nine 300-pound bombs.

Organizations participating in the demonstration were the 49th Bombardment Squadron, Langley Field; 17th Pursuit Squadron, Selfridge Field, Mich., and 90th Attack Squadron, Barksdale Field, La.

TWELFTH ANNUAL MITCHEL TROPHY AIR RACES
By the Selfridge Field Correspondent

On Saturday, October 17th, the First Pursuit Group at Selfridge Field, Michigan, conducted the twelfth running of the Mitchel Trophy Air Races. This annual event is the competition for a trophy, the John L. Mitchell Trophy, which was donated in 1922 by General William Mitchell in memory of his brother, who died in France while a member of the 1st Pursuit Group. By the terms of the gift, the Race is restricted to pilots who are active members of the 1st Pursuit Group, for the purpose of fostering finer Pursuit aircraft for the pilots of our Army. The Race was formerly run in connection with the Pulitzer Trophy Races and later with the National Air Races, but since 1930 it has been held at Selfridge Field.

Numerous other events have been added to the Mitchell Trophy Race proper so that the entire afternoon designated for the Mitchell Trophy Race is filled with various events of a military nature calculated to interest and amuse both the civilian and military spectators in attendance. The Mitchell Trophy Air Race now serves a two-fold purpose:

(1) A small charge is made for admission and the money devoted to charitable purposes, being divided between the Army Relief Society and other appropriate charities, and

(2) The average citizen and taxpayer is given an opportunity to see the Army Air Corps in a few of its more interesting phases of work and thereby to become more familiar with and interested in the Army Air Corps.

The 1st Pursuit Group has been extremely lucky in the past in the matter of weather on days designated for the Race. Due to the fact that the Race involves a great deal of preparation by personnel of the Group, it has been impossible in late years to hold this Race during the summer months when good weather might reasonably be expected. The units participating are members of the GHQ Air Force and have regular training to consider above and beyond the conduct of the Mitchell Trophy Races. Whoever controls the weather has been very kind on Mitchell Trophy Day in the past, but this year the Group ran out of good luck. The morning of the Race found a cold raw wind and a driving rain whipping across Selfridge Field.

The first event of the day was scheduled to start at 12:00 noon, and at that time a cold rain was still falling. However, the field already contained some fifteen or twenty thousand spectators, and it was decided to proceed with the program rather than disappoint all these people by postponing the Race. People continued to pour into the field throughout the day in spite of the weather, testifying eloquently to the newly-awakened interest of the civil populace in the doings of the Army Air Corps.

Promptly on the dot of 12:00 o'clock, three United States Naval Reserve airplanes, Grumman F2-F1 fighters, roared out in the rain across the field, and the program was on. Extremely rough air, a high wind, and a ceiling of about 600 feet made the performance of these Naval Reserve pilots a source of great admiration and respect by all who saw their flying. This event was followed at 12:15 by the appearance of the 107th Observation Squadron, Michigan National Guard, who also performed extremely well under the same handicaps.

The next scheduled event, an acrobatic competition for Flying Cadets, was postponed until later in the day, due to the impossible weather conditions, and some of the other events were then moved up on the schedule. One event only was cancelled, namely, the Mass Parachute Jump by members of the Parachute Section at Selfridge Field. A 30-mile an hour wind made this event too dangerous for the men involved.

The acrobatic competition for the Mt. Clemens Trophy, a large bronze cup donated to the Group by the City of Mt. Clemens, Michigan, was won by Flying Cadet Paul F. Helmick, 27th Pursuit Squadron, who hails from Corvallis, Oregon. He piloted a P-26 Pursuit plane. Lieut. Colonel Ross G. Hoyt, Major Jimmy Doolittle and Major Eddie Aldrin, the latter two ex-Army pilots, who judged this event, were high in their praise of the technique displayed by young Helmick and by Cadet Jesse W. Haws, who ran him a close second.

Balloon bursting by two P-26 airplanes of the 94th Pursuit Squadron provided a good deal of amusement to the ground spectators and elicited a good deal of sympathy from the observing pilots who understood the difficulty of this maneuver in a P-26 airplane.

The 94th and 17th Pursuit Squadrons intrigued the spectators with, respectively, an exhibition of six Pursuit aircraft in open formation maneuvers and eighteen aircraft in close formation maneuvers.

Barksdale Field was kind enough to contribute to the show by sending six A-17 Attack airplanes of the 3rd Attack Group. Led by Lieut. H.M. Bailey, these Attack planes put on an excellent show, flying in close formation, simulating attacks on ground targets and dropping parachute bombs on the field. The spectators were extremely interested to notice the low altitudes and technique of these pilots. A special event was put on by Captain Harlan T. McCormick and 2nd Lieut. James O. Guthrie, of the 17th Pursuit Squadron, who staged a skit involving the efforts of a non-flyer to control the gyrations of a PT airplane as it galloped madly about the field.

Three P-26's, piloted by Lieuts. Warburton, Van Auken and C.H. Anderson, thrilled the spectators by acrobatics and maneuvers done in

close formation, and Captain Lee Q. Wasser. Air Corps, of Headquarters Squadron, gave an exhibition of acrobatics in a P-26 which proved a source of wonderment to both pilots and laymen. Among other "stunts," Captain Wasser executed a series of maneuvers while flying with wings vertical. All "stunts" were this year performed above 1500 feet.

The speed events of the day consisted of three races, the Junior Birdmen Trophy Speed Dash, the Boeing Trophy Race and, of course, the John L. Mitchell Trophy Race. In the speed dash for the Junior Birdmen Trophy, Lieut. Joe S. Anderson, Air Reserve, flew a P-26B; 2nd Lieut. Elbert H. Schlanser, Air Reserve, a P-26A; 2nd Lieut. Elmer E. McKesson, Air Reserve, a PB-2A; and 2nd Lieut. Franklin M. Cochran, Air Reserve, a P-26C. This event was for a timed speed record, both ways over a one-mile course laid out on the flying field, and was won by Lieut. McKesson, of Richmond, Va., who attained an average speed of 251.74 m.p.h. The ship in which Lieut. McKesson won this event was a thing of beauty to behold,- every rivet, screw, and other protuberance had been taped over to improve streamlining, and McKesson and his crew chief had spent the previous several days waxing the entire airplane, with the result that the hangar floor was piled high with the bodies of flies which had alighted on the wings thereof, slipped and broke their necks. Lieut. Joe S. Anderson, of Honea Path, S.C., who won second place, attained a speed of 242.34 miles per hour.

The Boeing Trophy Race, consisting of ten laps around a ten-mile closed course in Boeing P-26A's, was won by 2nd Lieut. Eugene Brecht, Jr. of the 17th Pursuit Squadron, Brecht, who hails from San Diego, Calif., made the excellent time of 203.37 miles per hour, which was much higher than expected of these well-worn aircraft, the same planes having flown in two previous Mitchel Trophy Races and established the previous record of 216 miles per hour two years before. Second place in this event went to 2nd Lieut. Harold L. Kreider, Air Corps, of Seffner, Florida, a member of Headquarters Squadron, and third place to 2nd Lieut. Raymond P. Todd, Air Corps, of North Haven, Conn., a member of the 27th Pursuit Squadron.

When the time arrived for the Mitchell Trophy Race, the pièce de résistance of the day, the skies had cleared somewhat and, although it was rather chilly for the spectators, the weather was almost bearable. Some 40,000 people watched the running of this race, which consisted of five laps around a twenty-mile closed course in the latest type of Pursuit airplane, the Consolidated PB-2. This Race, the oldest established air race run in this country, is almost wholly a test of the pilot's skill in flying a closed course, inasmuch as each competing airplane has previously been set not to exceed a certain maximum RPM at ground altitudes. This, of course, is necessary because of the fact that these airplanes are designed to operate most efficiently at high altitude, and the constant danger of burning out the motors while racing at sea level. The Race was conducted by having each aircraft dive in turn out of a Lufbery Circle across the starting line, at which point the electric timers picked up the record of each airplane. Under these conditions it was extremely hard to tell during the conduct of the Race itself which aircraft was actually ahead during the Race. About the third lap, the time of each airplane was announced up to that point, and it became apparent that the Race was between Lieuts. Sterling, Neely and Bell. So close was the performance of the various ships that only once during the Race was any airplane passed by another. After the aircraft had landed and the times were announced, Mrs. William Mitchell, the widow of General "Billy" Mitchell, donor of the Trophy, presented it to 1st Lieut. John M. Sterling, Air Corps, of New York City, who had attained a speed of 217.546 miles an hour to break the existing record set by Major Fred C. Nelson, Air Corps, in 1934.

Second place went to Lieut. Harold L. Neely, of Huntington, Tenn., who also broke the previous record with a speed of 217.039. Third place went to Lieut. William J. Bell, of Buffalo, N.Y., whose average speed was 216.162 miles per hour.

Numerous distinguished guests braved the weather to watch the Races this year, among them being Brigadier Generals Henry H. Arnold and A.W. Robins; Group-Captain Howe, British Air Attaché; Squadron Leader Curtis of the Royal Canadian Air Force; Lieut. Colonel Ross G. Hoyt, of the Office of the Chief of the Air Corps; Major Reed Landis, war-time "Ace" with the 94th Pursuit Squadron; Mrs. William Mitchell, widow of the beloved General "Billy," who brought her small son, Billy Mitchell, Jr., to see the Races; Major "Jimmy" Doolittle, of the Shell Oil Company; Major "Eddie" Aldrin of the Standard Oil Company; Lee Gehlbach, former member of the First Pursuit Group, and a great many other distinguished guests, both from civilian and Army circles. Bad flying weather on the day of the Race kept a great many flying visitors on the ground, including the Langley Field, Mitchel Field and Washington contingents.

The Race was immeasurably helped by the cooperation and generosity of practically every newspaper, radio station and advertising bureau in the city of Detroit, also in nearby Mount Clemens. The entire program was broadcast by three different radio stations, one with a national hook-up, and was covered by such newspapers as the New York Times and the Chicago Tribune, in addition to all local news services. Short wave radio station W8XWJ, Detroit, broadcast for the benefit of foreign possessions, and the members of the Army Amateur Net. Considering the weather and the long drive to the field from Detroit, the officers of Selfridge Field feel that the crowd, which was estimated at 40,000 people, is highly indicative of the interest, not only local but national as well, which has grown up around the Mitchell Trophy Air Races. Every effort was made during the day to show, by means of displays and exhibits, not only the flying activities of the Army Air Corps, but the ground and other activities. Traffic, parking and other details of the handling of the crowds functioned perfectly.

The entire field was cleared of some 12,000

cars, numerous aircraft, and all pedestrians within forty minutes after the last ship had landed. In addition to making friends for the Air Corps, Selfridge Field feels that it has every right to boast of a record of twelve years of these Races in which not a single pilot or spectator has been as much as scratched, and only one aircraft has been slightly damaged. This record speaks a world of praise for the splendid work done by those officers who arrange and control the Races, but whose names do not appear in the papers. Not once during the show did events lag. Visitors have been emphatic in their praise of this meet as the best-handled and most interesting in the country, particularly praising the zero interval of time between events.

Selfridge Field wishes to take this humble means of thanking all who helped them with the Twelfth Mitchell Trophy Air Races, and to say that they are looking forward to seeing you next year under sunny skies.

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NEW RADIO EQUIPMENT FOR THE AIR CORPS

In order to keep all concerned informed as to the progress of the purchase and installation of radio equipment for the new Air Alert Net and Radio Beacons, the following is published:

The first article, "Western Electric 14-C Transmitter," has been tested at Mitchel Field, and the contractor will now proceed with production models, which should be ready for installation about March, 1937.

There has been considerable delay in the preparation of specifications for the Radio Beacon equipment, but it is believed that all controversial points have now been cleared up, and it is expected that this equipment will be ready for installation late in the present Fiscal Year.

Several changes have been made in the plans for these installations. Since the Army's occupancy of Moffett Field is indefinite, it has been decided not to make any fixed installations at that station at the present time.

The Department of Commerce plans a beacon installation near Love Field, at Dallas, Texas. Therefore, it has been decided to place a high frequency marker only at Hensley Field in lieu of a low powered beacon.

Midland, Texas, being on the present beacon routes, it is planned placing a high frequency marker at that point in lieu of a low powered beacon.

All other installations will be made as previously planned.

Funds for the procurement of low powered Airport Transmitters for various Air Corps stations have been included in the Signal Corps estimates for the Fiscal Year 1938. If these items are approved, it is hoped that the necessary equipment will be supplied early in the Fiscal Year 1938.

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ENGINEERING - SUPPLY CONFERENCE

The Annual Engineering and Supply Conference was held at the Materiel Division, Wright Field, Dayton, Ohio, between October 5th and 9th, inclusive, the usual representative group of officers whose duties are in connection with engineering and supply for the Air Corps being in attendance.

The Conference was held in the Wright Field auditorium and opened on the morning of October 5th by Major General Oscar Westover, who outlined briefly the purpose of the Conference and the methods under which the present system of procurement and supply operates. Brigadier General A.W. Robins, Chief of the Materiel Division, followed General Westover's remarks with an address of welcome to visiting officers, briefly outlining the conditions under which meetings would be held.

The five days were filled to overflowing with round table discussions, lectures and visits to the engineering laboratories and supply and maintenance offices at Wright and Patterson Fields. Among the visiting officers in attendance were the following:

Major General Oscar Westover, Chief of the Air Corps.

Colonels Chalmers G. Hall, L.S. Churchill, Frank M. Kennedy and Jacob Wuest.

Lieut. Colonels J. H. Houghton and J. T. McNarney.

Majors H. G. Adams, Ames S. Albro, A. Foulk, C.R. Glenn, S.J. Idzorek, J.T. Morris, John P. Richter, H. Riley, A. E. Simonin, Lowell Smith, C.W. Steinmetz, Charles W. Sullivan, Ralph Walker, John Whitely.

Captains James C. Cluck, E.V. Elder, James T. Curry, E.V. Harbeck, Gilbert Hayden, Guy Hill, M.E. Tillery and J.A. Austin.

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STRATOSPHERE LECTURES POPULAR

Major Albert W. Stevens, Air Corps, of the Materiel Division, Wright Field, Ohio, has been much in demand for lectures on the now famous stratosphere flight.

On October 27th, he appeared before Augustana College, Rock Island, Illinois; on October 28th, before the Young Men's Bureau, Cedar Rapids, Iowa; on October 29th, Grinnell College, Grinnell, Iowa.

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